What is claimed is:

1. A capacitor which comprises a separating layer,
characterized in that
the separating layer is present on a carrier and is adhered thereto and is a porous inorganic nonelectroconductive coating which comprises particles of compounds of the elements Al, Si and/or Zr that are adhered to each other and to the carrier by an inorganic adhesive.

2. A capacitor as per claim 1,
characterized in that
the carrier comprises woven or non-woven polymeric or glass fibers.

3. A capacitor as per claim 2,
characterized in that
the carrier is flexible and less than 50 μm in thickness.

4. A capacitor as per claim 2 or 3,
in that the polymeric fibers are selected from fibers of polyacrylonitrile, polyamide, polyester and/or polyolefin.

5. A capacitor as per claim 1,
characterized in that
the carrier is an electrode which is suitable for use as an electrode in a capacitor.

6. A capacitor according to claim 5,
characterized in that
the carrier is a porous electrode which is suitable for use as an electrode in a capacitor.

7. A capacitor according to claim 5 or 6,
characterized in that
the separating layer comprises metal oxide particles having an average particle size (D_g) greater than the average pore size (d) of the pores of the electrode that are adhered together

by metal oxide particles which have a particle size (D_k) which is smaller than the pores of the porous electrode.

8. A capacitor according to at least one of claims 5 to 7, characterized in that the separating layer has a thickness (z) of less than 100 D_g and not less than 1.5 D_g.

9. A capacitor according to claim 8, characterized in that the separating layer has a thickness (z) of less than 20 D_g and not less than 5 D_g.

10. A capacitor according to at least one of claims 7 to 9, characterized in that the metal oxide particles having an average particle size (D_g) greater than the average pore size (d) of the pores of the porous positive electrode are Al_2O_3 and/or ZrO_2 particles.

11. A capacitor according to at least one of claims 7 to 9, characterized in that the metal oxide particles having an average particle size (D_g) less than the average pore size (d) of the pores of the porous positive electrode are SiO_2 and/or ZrO_2 particles.

12. A capacitor according to at least one of claims 7 to 11, characterized in that the metal oxide particles having an average particle size (D_g) greater than the average pore size (d) of the pores of the porous electrode have an average particle size (D_g) of less than 10 μm.

13. A capacitor according to at least one of claims 1 to 12, characterized in that the separating layer has a porosity in the range from 30% to 70%.

14. A capacitor according to at least one of claims 1 to 13,

characterized in that

the inorganic adhesives are selected from oxides of the elements Al, Si and/or Zr.

15. A capacitor according to at least one of claims 1 to 14,
characterized in that
the inorganic adhesive comprises particles having an average particle size of less than 20 nm and was produced via a particulate sol or comprises an inorganic network of the oxides which was produced via a polymeric sol.

16. A capacitor as per at least one of claims 1 to 15,
characterized in that
there is additionally present an inorganic network comprising silicon, the silicon of the network being bonded via oxygen atoms to the oxides of the inorganic coating and via an organic radical to the carrier which comprises polymeric fibers.

17. A capacitor as per at least one of claims 1 to 16,
characterized in that
the adhered particles of the compounds of the elements Al, Si and/or Zr that are present in the separator had an average particle size in the range from 0.5 to 10 μm.

18. A capacitor as per at least one of claims 1 to 17,
characterized in that
the capacitor comprises a nonaqueous electrolyte selected from propylene carbonate, N,N-dimethylformamide, γ-butyrolactone or acetonitrile as solvent and also tetraalkylphosphonium or tetraalkylammonium salts as conducting salts.

19. A capacitor as per at least one of claims 1 to 18,
characterized in that
the separating layer is obtainable by applying a suspension to the carrier and solidifying the suspension on and in the carrier by at least single heating, the suspension comprising a sol as inorganic adhesive and at least one fraction of oxidic particles selected from the oxides of the elements Al, Zr and/or Si.

20. A capacitor according to claim 19,
characterized in that
the suspension is heated on the carrier at a temperature in the range from 170 to 280°C for from 0.5 to 10 minutes.

21. The use of a capacitor as per at least one of claims 1 to 20 as a store for electrical energy in vehicles.